

CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

- 1 1. A method for managing inventory comprising the steps of:
 - 2 converting an inventory problem to a financial portfolio problem;
 - 3 generating a set of possible inventory investments;
 - 4 computing a value of possible inventory investments; and
 - 5 selecting an inventory investment with a best value.
- 1 2. The method for managing inventory of claim 1, wherein the step of
2 converting the inventory problem into a financial portfolio problem expresses
3 the inventory problem as a combination of long and short positions and put
4 and call options on an asset.
- 1 3. The method for managing inventory of claim 2, wherein the value of
2 possible inventory investments is computed by the steps of:
 - 3 decomposing cash flows associated with the inventory investment into
 - 4 a combination of cash flows that can be represented by a portfolio comprised
 - 5 of long and short positions in an underlying asset;
 - 6 computing with a valuation methodology the value of each long and
 - 7 short position in the portfolio;
 - 8 summing values of each long and short position in the portfolio to
 - 9 determine a value of the portfolio; and
 - 10 setting the value of the inventory investment equal to the value of the
 - 11 portfolio.

- 1 4. The method for managing inventory of claim 3, wherein the valuation
2 methodology comprises one or more of a cash flow analysis, an option
3 valuation analysis, a derivatives pricing analysis, variance reduction
4 procedures, and finite difference methods.
- 1 5. The method for managing inventory of claim 3, wherein a value of an
2 underlying asset of the portfolio is a demand for the inventory.
- 1 6. The method for managing inventory of claim 1, wherein operations research
2 techniques are used to compute an inventory investment with a best value.
- 1 7. The method for managing inventory of claim 1, wherein an inventory
2 investment with a best value is a highest expected value.
- 1 8. The method for managing inventory of claim 1, wherein inventory is
2 selected using one of optimization, simulation, dynamic programming,
3 heuristics, rule-based systems, and a budget constraint.
- 1 9. The method for managing inventory of claim 1, wherein the step of
2 computing a value of possible inventory investments is based on one or more
3 of demand variability, risk free interest rate, current level of demand, and
4 historical level of demand.
- 1 10. A computer system for managing inventory comprising a plurality of
2 clients connected to a common server and a storage system connected to the
3 server, the storage system storing demand forecast, market price for products,
4 manufacturing or purchasing cost for products, holding and backlogging cost
5 for products, and inventory quantities for products, the server receiving inputs
6 from the clients and converting an inventory problem to a financial portfolio

7 problem, the server further generating a set of possible inventory investments,
8 computing a value of possible inventory investments, and selecting an
9 inventory investment with a best value.

1 11. The computer system for managing inventory of claim 10, wherein the
2 server converts the inventory problem into a financial portfolio problem by
3 expressing the inventory problem as a combination of long and short positions
4 and put and call options on an asset.

1 12. The computer system for managing inventory of claim 11, wherein the
2 server computes the value of possible inventory investments by decomposing
3 cash flows associated with the inventory investment into a combination of
4 cash flows that can be represented by a portfolio comprised of long and short
5 positions in an underlying asset, computing with a valuation methodology the
6 value of each long and short position in the portfolio, summing values of each
7 long and short position in the portfolio to determine a value of the portfolio,
8 and setting the value of the inventory investment equal to the value of the
9 portfolio.